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76046 7590 09/03/2009

KUNZLER & MCKENZIE
8 EAST BROADWAY
SUITE 600
SALT LAKE CITY, UT 84111

EXAMINER

VAUGHAN, MICHAEL R

ART UNIT

PAPER NUMBER

2431

DATE MAILED: 09/03/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,509

05/16/2007

Richard Michael Wyn Harran

GB920040005US1

6651

TITLE OF INVENTION: KEY-BASED ENCRYPTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/03/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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76046 7590 09/03/2009

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,509	05/16/2007	Richard Michael Wyn Harran	GB920040005US1	6651

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/03/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
VAUGHAN, MICHAEL R	2431	380-277000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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76046	7590	09/03/2009	EXAMINER	
KUNZLER & MCKENZIE 8 EAST BROADWAY SUITE 600 SALT LAKE CITY, UT 84111			VAUGHAN, MICHAEL R	
			ART UNIT	PAPER NUMBER
			2431	
DATE MAILED: 09/03/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 116 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 116 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/598,509

Examiner

MICHAEL R. VAUGHAN

Applicant(s)

HARRAN ET AL.

Art Unit

2431

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/10/09.
2. ☒ The allowed claim(s) is/are original claims 1, 39, 41-44, 47-52, and 55 renumbered as 1-13.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/10/09 has been entered.

The instant application 10/598,509 is presented for examination by the examiner. Claims 1, 39, 41-44, 47-52, and 55 are pending as filed on 7/10/09. Claims 43, 48, 49 and 54 remain as filed by Applicant on 7/10/09.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone conversation with David McKenzie, attorney of record, on 8-11-2009.

The application has been amended by replacing the claims as follows:

1. A method for facilitating secure data communications using a secret key for encrypting data flowing between first computing node comprising a processor and a memory and second computing node over a communications link, the method comprising:

determining that the communications link has been idle for at least a predetermined period of time, the communications link intermittently fluctuating between idle and busy, the idle communication link having no secure data transmission within the at least a predetermined period of time;

determining that there is secure data to flow over the idle communications link between the first computing node and the second computing node; and

generating a new secret key on demand exclusively in response to determining that there is secure data to flow over the idle communications link and in response to determining that the communication link has been idle for at least the predetermined period of time, wherein the new secret key serves to encrypt the secure data sent between the first computing node and the second computing node over the communications link.

39. A method performed at a first computing node comprising a processor and a memory for facilitating secure data communications by using a secret key for encrypting data flowing between said first computing node and a second computing node over a communications link, the method comprising:

determining that the communications link has been idle for at least a predetermined period of time, the communications link intermittently fluctuating between idle and busy, the idle

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communication link having no secure data transmission within the at least a predetermined period of time;

determining that secure data is available for flow over the idle communications link between the first computing node and the second computing node; and

generating a new secret key on demand before transmission over the idle communications link recommences, in response to a determination that secure data is available and a determination that the communications link has been idle for at least the predetermined period of time, the new secret key for use in encrypting at least part of the secure available data before the secure available data flows onto the communications link.

41. The method of claim 39 including the additional steps of:

determining whether the amount of secure data sent over the communications link since the last generation of a secret key exceeds a predetermined amount threshold; and

if the amount of secure data sent exceeds the predetermined amount threshold, initiating generation of a new secret key.

42. The method of claim 39 including the additional steps of:

sending a heartbeat message to the second computing node only if it is determined that the link has been idle for at least the predetermined period of time and that there is no secure data available for flow over the communications link; and

monitoring the communications link for receipt of an acknowledgement from the second computing node.

44. An apparatus for facilitating secure data communications by using a secret key to encrypt data flowing over a communications link between the apparatus and a remote system, said apparatus comprising:

a data detector for determining whether the communications link has been idle for at least a predetermined period of time using a timer, the communications link intermittently fluctuating between idle and busy, the idle communication link having no secure data transmission within the at least a predetermined period of time, the data detector determining that data is now available for flow to the remote system over the communications link;

key generation logic for generating a new secret key on demand in response to determinations that the communications link has been idle for at least the predetermined period of time and there is secure data now available for flow to the remote system, the new secret key for use in encrypting at least part of the secure available data before the secure available data flows onto the communications link; and

a byte measurer for determining whether the amount of secure data sent over the communications link has exceeded a predetermined amount threshold since the last generation of a secret key and

wherein the key generation logic initiates generation of a new secret key if the determination is that the amount of secure data sent has exceeded the predetermined amount threshold.

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47. The apparatus of claim 44 further including a heartbeat issuer for sending a heartbeat to the remote system if the data detector determines that the communications link has been idle but there is no secure data available for flow to the remote system over the communications link.

50. A program product comprising a computer readable storage media embodying program instructions executed by a computer to facilitate secure data communications with a remote system by using a secret key for encrypting data flowing between the computer and the remote system over a communications link by:

determining that the communications link has been idle for at least a predetermined period of time, the communications link intermittently fluctuating between idle and busy, the idle communication link having no secure data communication traffic within the at least a predetermined period of time;

sending a heartbeat message to the remote system only if it is determined that the link has been idle for at least a predetermined period of time and that there is no secure data available for flow over the communications link;

monitoring the communications link for receipt of an acknowledgement from the remote system;

receiving the acknowledgement from the remote system within a predetermined period of time;

determining that secure data is available for flow over the idle communications link from the computer to the remote system;

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detecting that a heartbeat flowed across the idle communications link; and
generating a new secret key on demand exclusively in response to a determination that secure data is available for flow over the idle communications link, detecting that a heartbeat flowed across the idle communications link, and receiving the acknowledgement from the remote system within the predetermined period of time, the new secret key for use in encrypting at least part of the secure available data before the secure available data flows onto the communications link, such that generation of a new secret key exclusively occurs when secure data is available for flow over the idle communications link.

52. (Currently Amended) The program product of either claim 50 or claim 51 including additional program instructions for:

determining whether the amount of secure data sent over the communications link since the last generation of a secret key exceeds a predetermined amount threshold; and

initiating generation of a new secret key if the amount of secure data sent is determined to have exceeded the predetermined amount threshold.

Response to Amendment

The present claim amendments overcome the previous claim objections and 112 rejections.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Applicant's arguments, filed 7/10/09, with respect to claims 1, 39, 44, and 50 have been fully considered and are persuasive.

The closest prior art of record fails to teach or suggest in combination with the other claimed limitations, "generating a new secret key on demand in response to determining that there is secure data to flow over an idle communication". The closest prior art, USP 6,795,555 to Parisien et al., hereinafter Parisien, discloses using idle time to generate a new keys. However, the claims are novel and unobvious because they only generate a new key when the link has been idle of secure data and when there is available data that needs to be secured. The claims' scope is such that keys are generating on demand of new available data as opposed just a periodic key refresh. All of the independent claims have this limitation, with claim 1 being the broadest, and the others adding more conditions to the key generation.

Allowable Subject Matter

Claims 1, 39, 41-44, 47-52, and 55 are allowed.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL R. VAUGHAN whose telephone number is (571)270-7316. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:00pm, EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. V./
Examiner, Art Unit 2431

/William R. Korzuch/
Supervisory Patent Examiner, Art Unit 2431

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